GreenPrint Project Assessment
Factors Considered to Establish Ecological Value

Overview

GreenPrint provides a funding mechanism to acquire property or interest in property located within the Green Infrastructure as identified by DNR. CCWS has developed several "desktop" metrics or variables that can be used, in a comparative sense, to help identify and rank potential projects. These metrics may be applicable at different geographic scales: "regionally" and "locally".

Variables relevant at **regional scales** help with comparisons among opportunities within a given physiographic region. For purposes of GreenPrint/Green Infrastructure, physiographic regions include the Appalachian Plateau, Ridge and Valley, Blue Ridge, Piedmont, Coastal Plain - West and Coastal Plain - East. The regional evaluation looks at the ecological importance of the hub or corridor in which the project lies relative to the ecological importance of other hubs or corridors within that physiographic regions. In a sense the regional evaluation can be considered an assessment of the landscape "context" of the project.

Variables relevant at **local scales** help to identify conservation values at or in close proximity to a given project. They provide a mechanism for making comparisons among potential projects within a given hub or corridor.

Metrics Available to Evaluate GreenPrint Project Proposals

Program Open Space provides property/project boundary information to CCWS-GIS for parcel digitization. A given GreenPrint project could be a single parcel owned by a single landowner, multiple parcels that are part of a single protection project, or part or parts of a parcel or parcels. It is important to recognize that, unless instructed differently, the "unit of analysis" for evaluating GreenPrint projects is an individual parcel. If there are multiple parcels involved in a project or if only part of a parcel is involved in the project, some statistics developed may not accurately reflect the specifics of the proposal being considered by POS.

Once the digital boundary for the project is created by POS and transmitted to WMAD, a variety of statistics can be generated that could prove useful in evaluating parcels. These include:

- acres of green infrastructure contained in project boundary
- percent of project that lies in green infrastructure
- regional ecological rank of hub or corridor
- regional vulnerability rank of hub or corridor
- statewide vulnerability rank of hub or corridor
- project ecological score
- project vulnerability score

It should be noted that, with the exception of the first two statistics, each of these metrics is essentially an index that has been developed based on the best available GIS data. The data that has been used to develop these indices was created for a variety of uses, at a variety of scales, and at a variety of times. **Therefore it is extremely important that these indices be used in conjunction with other information when evaluating the suitability of a specific GreenPrint project.**

Project Ecological Score

Based on direction received from Program Open Space, FY 2002 GreenPrint proposals are being evaluated using the Project Ecological Score. The score assigned to a given project is a composite index that incorporates elements of both **regional** and **local** ecological significance; and therefore considers the importance of the project given both its

landscape context within the green infrastructure in a given physiographic region as well as the ecological values present on or in close proximity to the property. The current Project Ecological Score methodology gives equal weight to the regional and local scores (i.e., - 50% of a project's ecological value is determined by the regional significance of the hub or corridor in which it lies and 50% of the score is determined by local ecological considerations).

The Regional Ecological Score considers factors relating to biological diversity, aquatic integrity, terrestrial integrity (including remoteness and intactness of hubs and corridors), landform characteristics, and characteristics of the surrounding landscape.

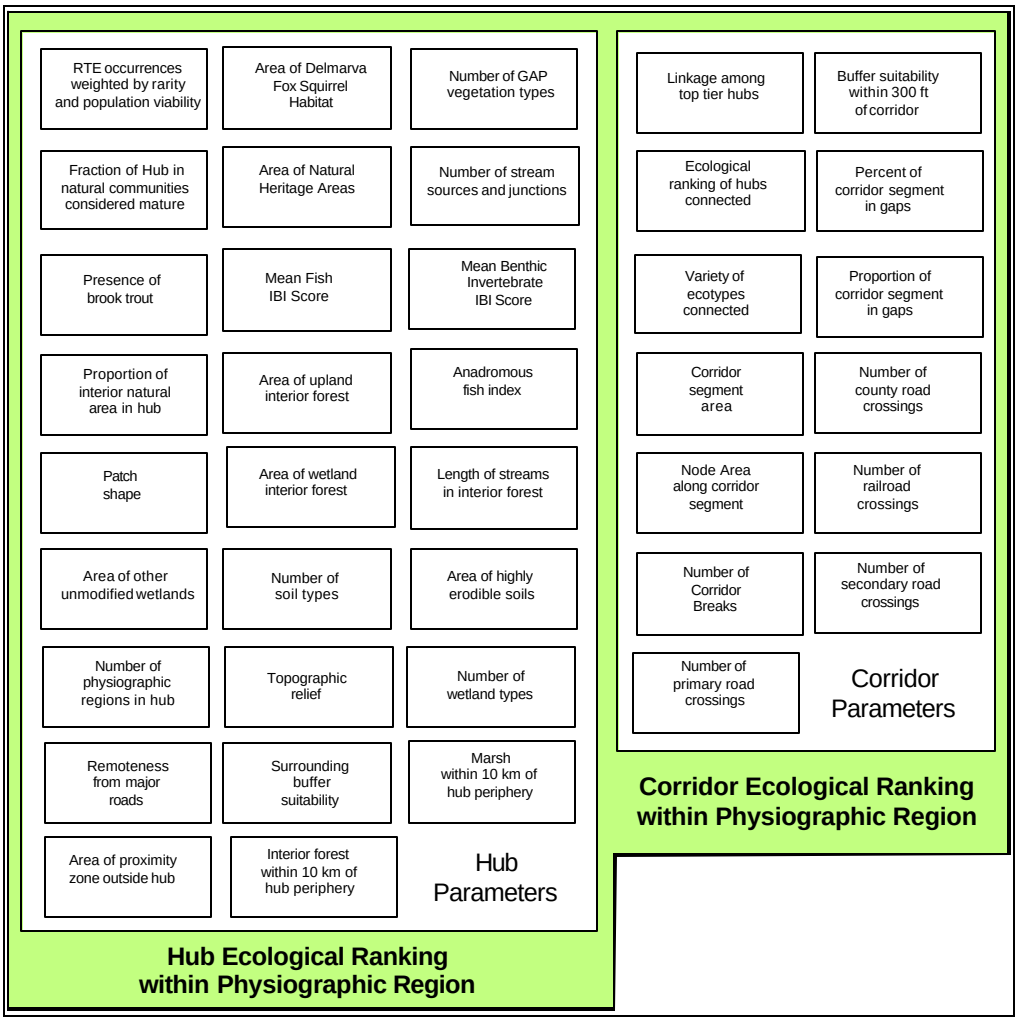

Figure 1. Factors Considered in Establishing Regional Ecological Score

The local ecological score includes similar metrics, but calculates these metrics for GIS based grid cells (which are approximately 1/3 acre in size). These grid cells are then aggregated and summarized for a given project/parcel boundary. Additional information, including a rationale for the use of the parameter, are included in the detailed Green Infrastructure Assessment methodology.

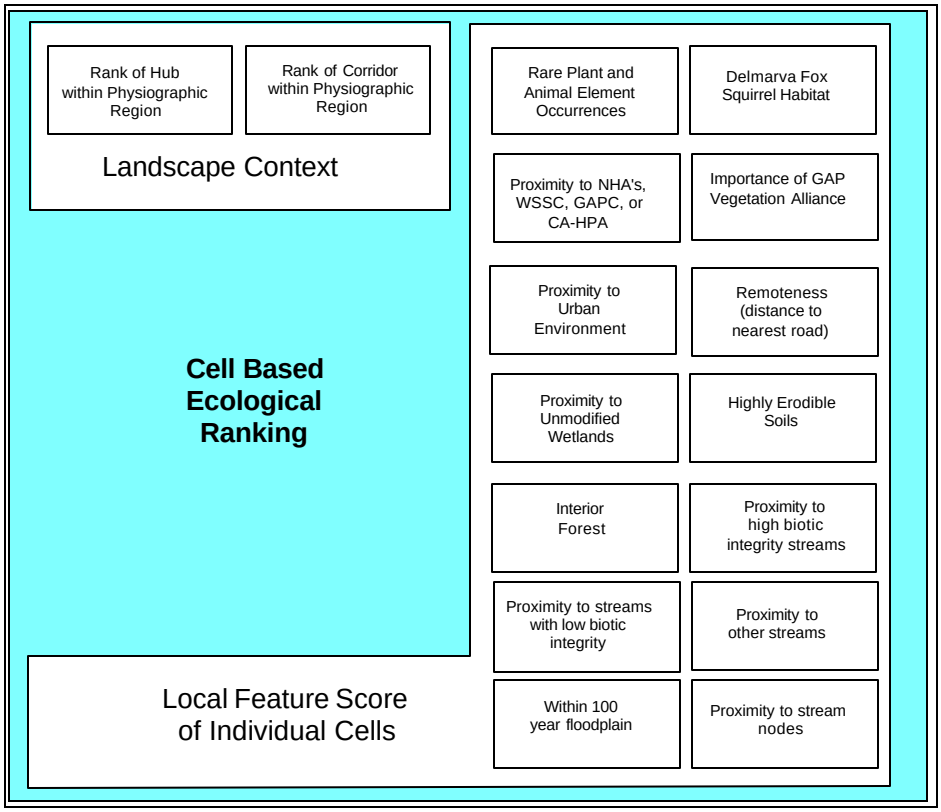

Figure 2: Factors Considered in Establishing Local Ecological Score

For both the Regional and Local (cell-based) analysis, importance weights are assigned to each of the individual factors and a composite index is developed.

$$\text{Project Ecological Score} = \left[\text{Regional Ecological Score} \times .5\right] + \left[\text{Local Ecological Score} \times .5\right]$$

The composite index reflects the project's rank within its physiographic region. What this means is that a project with an overall rating of 90 in the Piedmont may not appear as "pristine" as a project with a rating of 90 in the Appalachian Plateau because of the history of greater disturbance in the Piedmont.

Ranking Projects based on Ecological Score

To evaluate the relative ecological value of proposed GreenPrint projects, a Project Ecological Score has been established **for that portion of each proposed project that falls within the Green Infrastructure**. A scale of Excellent, Good, Fair and Poor has been established that permits a rough ranking of projects. **This ranking should be considered in conjunction with other factors when determining which projects to pursue**.

The thresholds that distinguish between excellent, good, fair, and poor were statistically derived based on an examination of the distribution of the ecological scores for all cells within the *entire* green infrastructure.

Other Factors to Consider

The Project Ecological Score provides one metric to rank prospective projects for conservation value. Other factors that should be considered include:

- ***Acres of Green Infrastructure in Proposal*** - The more the better
- ***Percent of Project that falls in Green Infrastructure*** - The more the better
- ***Position of Parcel Relative to Other Protected lands*** - In general, closer is better. This parameter is import to consider from a conservation biology perspective (larger, more intact protected areas are better) as well as a from a land management perspetive (e.g., - access, law enforcement, boundary recovery, etc.)
- ***Vulnerability of Parcel to Conversion to Non-Resource Based Use*** - Is the property likely to be sold/developed if GreenPrint protection is not pursued.
- ***Availability of Alternative Protection Mechanisms*** - Can the property be secured via an alternative funding/implmentation mechanism
- ***Supplemental Analysis of the Natural Heritage Program*** - Some heritage elements are not currently adequately addressed in the ecological scoring system.
- ***Project Cost***
- ***Restoration Need*** - Are there substantial human-caused disruptions to ecological processes omn the property.
- ***Availability of Supplementary Documentation for Conservation Values*** - Including information derived from local government and private ecological inventories.

Finally, it is important to recognize that the metrics derived from desktop analyses should be verified by supplementary data wherever possible. As mentioned earlier, the temporal and spatial resolution of data used in the Green Infrastructure model limits its use for parcel level assessments.